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09/800,999	03/08/2001	Sung Bae Jun	P. 194	6665

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EXAMINER

BONSHOCK, DENNIS G

ART UNIT PAPER NUMBER

2173

DATE MAILED: 09/15/2003

5

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/800,999

Applicant(s)

JUN ET AL.

Examiner

Dennis G Bonshock

Art Unit

2173

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) ____ is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-29 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Specification

1. Claim 13 is objected to because of the following informalities: The limitation "an ID for identifying the synthetic key frame" is given twice in the claim. Appropriate correction is required.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
3. Claims 1-3, 5-7, 10-18, 24, 28, and 29 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
4. Claim 1 indefinitely uses "it" to describe, "said video stream."
5. Claim 1 recites the limitation "selecting key frame(s) or key region(s) representative of a divided section" in the second paragraph. There is insufficient antecedent basis for this limitation in the claim. "Divided section" should be replaced with "one of the divided sections".
6. Claims 1, 3, 6, 7, 12, 14, 17, 18, 24, 28, and 29 recite "or" which is vague language and should be replaced with "selections are one of these".
7. The term "meaningful" in claims 1, 2, 5, 11, 12, 16, 18, 24, and 28 is a relative term, which renders the claim indefinite. The term "meaningful" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite

degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

8. Claim 2 rejected as being indefinite because there are separate receiving and dividing steps, where the dividing step now is receiving.

9. Claims 6, 10, 13, and 15 give a "can statement" in which several claim limitations are followed by a "can statement" which then provides more limitations that indefinitely further limit the claim.

Claim Rejections - 35 USC § 102

10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

11. Claims 1-7, 9, 11, 12, 14-18, and 20-27 are rejected under 35 U.S.C. 102(e) as being anticipated by Hirai et al., Patent # 6,526,215, hereinafter Hirai. With regard to claim 1, which teaches a method of generating key frames comprising the steps of: receiving a video stream and dividing it into meaningful sections, selecting the key frames, and combining key frames to form one key frame, Hirai teaches, in column 4, line 45 an apparatus for receiving moving picture data, dividing it into scenes, further

dividing it up into cuts, and forming still images as representatives (key frames) of these subdivisions.

12. With regard to claim 2, which teaches the dividing step including receiving video from a second source, Hirai teaches, in column 3, line 8 and in figure 5, receiving input from sources such as a movie, and a still image.

13. With regard to claim 3, which teaches the selecting step of including key frames output from a second source, Hirai teaches, in column 3, line 8 and in figure 5, receiving input from sources such as a movie, and a still image.

14. With regard to claim 4, which teaches that a section is a unit of a segment, Hirai teaches, in column 4 line 45, that a scene (section) comprises a plurality of cuts (segments).

15. With regard to claim 5, which teaches a method of describing a key frame comprising, dividing a video into meaningful segments, and describing a list of key frames, Hirai teaches, in column 4, lines 50-52, a detecting means for designating said representative still images of said scenes and cuts to edit said moving picture. Hirai also teaches, in column 15, line 26, that video data belonging to the M-icon (key frame) is displayed in the form of a list.

16. With regard to claim 6, which teaches the describing step including: an ID, a representative segment locator, a key frame list for identifying elements of a key frame, and can also include a fidelity value, and information on arrangement, Hirai teaches, in column 3, line 8, and in figures 4 and 5, video linked information including names, types, and lengths of media. Hirai further teaches, in column 15, line 26, video data belonging

to the M-icon that is displayed in the form of a list. Hirai further teaches, with regard to the items that can be included, in column 5, line 6, a degree of abstraction, and in column 9, lines 35-51 in conjunction with figures 8 and 10, Hirai teaches the arrangement of parent and child elements in a Hierarchy.

17. With regard to claim 7, which teaches the information about the arrangement includes 2-D or 3-D location information, Hirai teaches, in column 19, line 50, that there is preparation of items in a hierarchical structure so that when information is not suitable, one of the items in a layer higher than the layer containing the information item can be used.

18. With regard to claim 9, which teaches a key frame locator including: the location, an annotation, and a related segment, also a segment locator designates a segment represented by a corresponding key frame, and a fidelity value, Hirai teaches, in column 11, line 9-15, information regarding address, name, and cut start/end points. Hirai also teaches, in column 5, line 6, that the degree of abstraction is determined for the images.

19. With regard to claim 11, which teaches an s-key frame including a key frame list, Ratakonda teaches, in column 15, line 26, that M-icons (key frames) can contain a list of M-icons. With regard to claim 11 also teaching each element of a key frame list having a fidelity value, Ratakonda teaches in column 5, line 6, that the degree of abstraction is determined for the images.

20. With regard to claim 12, which teaches a method of describing key frame data comprising: dividing a video into meaningful sections, and generating the key frames. Hirai teaches, in column 4, line 45, an apparatus for receiving moving picture data,

dividing it into scenes, further dividing it up into cuts, and forming still images as representatives (key frames) of these subdivisions.

21. With regard to claim 14, which teaches that each element of a key frame list contains a key frame locator, Hirai teaches, in column 11, lines 9-15, that layer and address information for each M-icon (key frame).

22. With regard to claim 15, which teaches a key region locator including an ID, and a representative segment locator, that can include: a fidelity value, a annotation, and a list of related segments, Hirai teaches, in column 3, line 38 and in figures 4 and 5, source and individual frame names. Hirai also teaches a means of calculating a fidelity value (see column 5, line 6), an annotation (see column 11, lines 9-15), and a list of related segments (see column 11, lines 9-15).

23. With regard to claim 16, which teaches each element of a key region list including a fidelity value, Hirai teaches, in column 5, line 6, that the images contain a degree of abstraction.

24. With regard to claim 17, which teaches information about arrangement includes either a 2-D or a 3-D locator, Hirai teaches, in column 19, line 50, the tree structured arrangement of the information has an advantage that the tag buttons can be easily searched.

25. With regard to claim 18, which teaches a hierarchical video summary method comprising means of, dividing a video stream into meaningful sections, assigning key frames to a key image locator, a hierarchical summary list for describing lower summary structures, and structural information, Hirai teaches, in column 4, line 45, receiving

moving picture data, dividing it into scenes, further dividing it up into cuts, and forming still images as representatives (key frames) of these subdivisions. Hirai further teaches, in column 11, lines 9-15, information being contained in the elements of a hierarchical structure giving address information and video structural information.

26. With regard to claim 20, which teaches that each hierarchical summary structure is represented by an image representative of a specific segment, Hirai teaches, in column 16, line 1 and in figure 1, how in the hierarchy each M-icon (key frame) has its own information zone.

27. With regard to claim 21, which teaches that each component of the lower hierarchical summary list uses a hierarchical/recursive summary structure as a lower hierarchical summary structure, Hirai teaches, in column 9, line 7 and in figure 1, how the hierarchy is organized from the top level story to the next level scenes to the next level of cuts where a cut is a subset of a scene, and each of these M-icons (key frames) has a summary element.

28. With regard to claim 22, which teaches that the hierarchical summary structure has summary level information, Hirai teaches, in column 10, lines 56-67, that each icon is given a layer level value (1, 2, . . . from the bottom layer).

29. With regard to claim 23, which teaches the hierarchical summary structure including a fidelity value, Hirai teaches, in column 5, line 6, and a level of degrees of abstraction as associated with frame images.

30. With regard to claim 24, which teaches a method for providing a video browsing interface comprising: dividing a video stream into meaningful sections, and providing a

user interface to a predetermined display, Hirai teaches in column 4, line 45, an apparatus for taking in moving picture data and dividing it up into scenes and cuts. Hirai also teaches in column 4, line 60, a means for displaying said hierarchical structure.

31. With regard to claim 25, which teaches the user interface providing the synthetic key frame in the form of view, Hirai teaches in figure 1, a visual representation of the M-icons (key frames).

32. With regard to claim 26, which teaches key frames being arranged in a time sequence, and the key frames arranged in a tree shape, Hirai teaches, in column 9, lines 35-51 and in conjunction with figures 8 and 10, how all of the M-icons are arranged in the order in which they occurred in the inputted moving picture, and that they are displayed in a hierarchical tree structure.

33. With regard to claim 27, which teaches key frames assigned to each node in a TOC form, Hirai teaches, in column 9, lines 25-34 and in conjunction with figures 8 and 10, managing information in an organized form, and then displays a TOC (figure for the hierarchy in figure 10).

34. Claims 28 and 29 are rejected under 35 U.S.C. 102(e) as being anticipated by Ratakonda, Patent # 5,956,026. With regard to claim 28, which teaches dividing video into meaningful segments, Ratakonda teaches in column 2, lines 13-27 generating a summary of a video based on key frames by detecting shot boundaries, and locating shots. With regard to claim 28 also teaching providing a user interface, Ratakonda teaches, in column 13, line 35, providing a user interface. With regard to claim 28 teaching selecting s-key frames according to the user input, and reproducing a segment

represented by the selected s-key frame, Ratakonda teaches, in column 5, lines 56-63, clicking on a particular frame and being able to display a normal playback of a video sequence.

35. With regard to claim 29, which teaches a reproducing step that reproduces a segment related with constituent elements of the contents of the key frame, Ratakonda teaches in column 5, lines 56-63, clicking on a particular frame and being able to display a normal playback of a video sequence.

Claim Rejections - 35 USC § 103

36. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

37. Claims 8, 10, 13, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hirai and Ratakonda. Hirai teaches a method of generating representative still images from a video sequence, a locating means comprising: a means of calculating a fidelity value (see column 5, line 6), a annotation (see column 11, lines 9-15), a list of related segments (see column 11, lines 9-15), and information on arrangement (see column 11, lines 9-15), but doesn't teach elements in a key frame list containing locators, the locator including an inherent ID, and image locator to locate the image, a representative segment locator, or a key image locator being a structure for designating an image using, a key image locator, a key frame locator, a s-key frame locator. Ratakonda teaches a video summarization system similar to that of Hirai, but

further teaches elements in a key frame list containing locators, the locator including an inherent ID, and image locator to locate the image, a representative segment locator, and a key image locator being a structure for designating an image using a, key image locator, a key frame locator, a s-key frame locator. With regard to claim 8, Ratakonda teaches, in column 6, lines 45-67, a means for locating items in a key frame list. It would have been obvious to one of ordinary skill in the art, having the teachings of Hirai and Ratakonda before him at the time the invention was made to modify the method of generating representative still images of a video sequence of Hirai to include the representative image locating means of Ratakonda. One would have been motivated to make such a combination because locating these key frames and the video segment they represent can help in editing and/or viewing the video sequence.

38. With regard to claim 10, which teaches the locator including an inherent ID, an image locator to locate the region, a representative segment locator, a key region locator that can contain: a fidelity value, an annotation, and a list of related segments (all rejected supra). Ratakonda teaches, in column 6, line 60, a key frames having specific IDs. Ratakonda further teaches, in column 6, line 63, the region that a key frame represents. Ratakonda also teaches, in column 6, line 62, that the key frame k_j represents a contiguous set of video frames. It would have been obvious to one of ordinary skill in the art, having the teachings of Hirai and Ratakonda before him at the time the invention was made to modify the method of generating still images of Hirai to include the key frames having specific IDs, the region that a key frame represents, and the key frame k_j representing a contiguous set of video frames of Ratakonda. One

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would have been motivated to make such a combination because the more information that is available, the easier it will be for the user to use the video software to effectively find the sought after segment, find out how representative it is, and find relative segments.

39. With regard to claim 13, which teaches the locator including an inherent ID, and image locator to locate the region, a representative segment locator, a key region list, a fidelity value (as rejected supra), and information on arrangement (as rejected supra), Ratakonda teaches, in column 6, line 60, key frames having specific IDs. Ratakonda further teaches, in column 6, line 63, the region that a key frame represents. Ratakonda also teaches, in column 6, line 62, that the key frame k_j represents a contiguous set of video frames. Ratakonda further teaches, in column 6, line 62, a list of the frames that a key frame represents. It would have been obvious to one of ordinary skill in the art, having the teachings of Hirai and Ratakonda before him at the time the invention was made to modify the method of generating still images of Hirai to include the key frames having specific IDs, the region that a key frame represents, that the key frame k_j represents a contiguous set of video frames, and a list of the frames that a key frame represents. One would have been motivated to make such a combination because the more information that is available, the easier it will be for the user to use the video software to effectively find the sought after segment, find out how representative it is, and find relative segments.

40. With regard to claim 19, which teaches a key image locator being a structure for designating an image using: a key image locator, a key frame locator, and a s-key frame locator, Ratakonda teaches, in column 6, lines 45-67, a locator method for locating key images of all levels of the hierarchy, and all the frames which they represent. It would have been obvious to one of ordinary skill in the art, having the teachings of Hirai and Ratakonda before him at the time the invention was made to modify the method of generating still images of Hirai to include a locator method for locating key images of all levels of the hierarchy, and all the frames which they represent of Ratakonda. One would have been motivated to make such a combination because the inclusion of these location and identification elements will help the user in using the video software.

Conclusion

41. The prior art made of record on form PTO-892 and not relied upon is considered pertinent to applicant's disclosure. Applicant is required under 37 C.F.R. § 1.111(c) to consider these references fully when responding to this action. The documents cited therein teach a method of generating representative key frames from a video sequence.

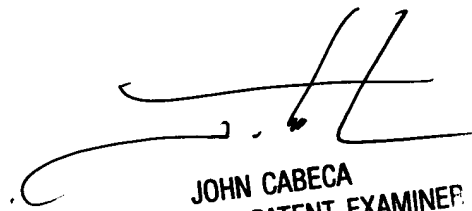
37. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dennis G Bonshock whose telephone number is (703) 305-4668. The examiner can normally be reached on Monday - Friday, 8:30 a.m. - 5:00 p.m.

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42. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Cabeca can be reached on (703) 308-3116. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

43. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

dgb



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